<center>**REMARKS**</center>

These Remarks are in reply to the Office Action mailed February 27, 2009.

Claims 1-25 were pending in the Application prior to the outstanding Office Action. Claims 7 and 16 are cancelled. The Applicants reserve the right to prosecute cancelled or withdrawn claims in continuation or divisional applications. Claims 1, 8-10, 17-18 and 22-25 are amended. The amendments to Claims 1, 22 and 25 are supported in the specification as filed at least at paragraphs [0058], [0061], [0069] and [0071]-[0073]. The amendments to Claims 10 and 23 are supported in the specification as filed at least at paragraphs [0007], [0028], [0036], [0046], [0058], [0061], [0066], [0069] and [0071]-[0073]. The amendments to Claim 24 are supported in the specification as filed at least at paragraphs [0024], [0025], [0027], [0043], [0058], [0060]-[0066], [0069] and [0071]-[0073]. The amendments to Claims 9, 10, 17 and 18 are made to correct dependency. New Claims 26 and 27 are added. Support for Claims 26 and 27 can be found in the specification as filed at least at paragraphs [0007], [0028], [0036], [0046] and [0066].

Claims 1-6, 8-15 and 17-26 remain for the Examiner's consideration. Reconsideration and withdrawal of the rejections are respectfully requested.

CLAIM REJECTIONS UNDER 35 U.S.C. § 101

Claims 1-25 are rejected under 35 U.S.C. §101 as allegedly not falling within one of the four statutory categories of invention.

Claims 1-25 stand rejected because they do not fall within the four statutory categories of inventions. The Federal Circuit ruling en-banc recently laid out that "the 'useful concrete or tangible' result was inadequate and that the machine or transformation test outlined by the

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Supreme Court is the correct test to apply". *In re Bilski*, 2007-1130. Further, "a claimed process is patent-eligible if it transforms an article into a different state or thing." *Id.* "Thus the transformation of that raw data into a particular visual depiction of a physical object on a display was sufficient to render that ... process patent-eligible." *Id.* The Applicants respectfully submit that method Claims 1, 10 and 22-25 take a plurality of video segments, which are physical objects and transform the physical objects. Further, the claims recite meaningful limits to generate the highly condensed visual summary of video regions, or transformed product. Thus, the resulting highly condensed visual summary of video regions is representative of the physical objects, but is transformed. Accordingly, these claims are all within the boundaries of statutory subject matter.

Further, the Applicants have amended claims 1, 10, and 22-25 to add language to make it clear that the method is a computer implemented method implemented within a computer system including memory and CPU.

In view of the above, Applicants respectfully request that the Examiner reconsider and withdraw the § 101 rejections.

The following sections are numbered 4, 6, 7, 8 and 9 in order to correspond with the Examiner's numbering in the February 27, 2009 Office Action.

CLAIM REJECTIONS UNDER 35 U.S.C. § 102

4.   Claims 1, 10, 12, 22, 23 and 24 are rejected under 35 U.S.C. §102(b) as allegedly being anticipated by *Bae* et al., U.S. Publication No. US 2002/0126143 (hereinafter *Bae*).

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Claim 1

<u>Dominant Group</u>

Amended Claim 1 includes the limitation 'utilizing the memory and CPU for determining a dominant group in each of a plurality of video segments'. The Examiner directs the Applicants to *Bae*, paragraph[s] [0023], [0028], <u>Office Action, February 27, 2009, page 4, second full paragraph, lines 5-6</u>. The identified sections are reproduced herein.

[0023] "To achieve the above objects and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described herein, there is provided an article-based news video content summary method that divides the news video content on the basis of a news article unit, extracts an anchor key frame, an episode key frame and a text key frame associated with the corresponding news article from the news video content divided on the basis of the news article unit, and indexes the anchor key frame, the episode key frame and the text key frame as summary elements for representing the news article."

[0028] "In accordance with one aspect of the present invention, a method for summarizing a news video content based on a news article comprises the steps of a) dividing the news video content on the basis of a news article unit; b) extracting an anchor key frame, an episode key frame and a synthetic text key frame associated with the corresponding news article from the news video content divided on the basis of the news article unit; and c) indexing the anchor key frame, the episode key frame and the synthetic text key frame as summary elements for representing the news article." *Bae, paragraphs [0023] and [0028].*

The Examiner directs the Applicants to these two sections in *Bae*, but does not identify where they disclose the limitation 'utilizing the memory and CPU for determining a dominant group in each of a plurality of video segments'. The Applicants respectfully submit that *Bae* does not identify a dominant group in each of a plurality of video segments. Thus, *Bae* does not disclose this limitation. Accordingly, amended Claim 1 is not anticipated by *Bae*.

A Key Frame

Amended Claim 1 includes the limitation "utilizing the memory and CPU for determining a key frame in each of the video segments". The Examiner directs the Applicants to *Bae*, paragraph [0028], Office Action, February 27, 2009, page 5, second full paragraph, second last line. The Examiner states "extracting an anchor key frame; an episode key frame". Office Action, February 27, 2009, page 5, second full paragraph, second last - last line.

Thus the Examiner appears to be arguing that *Bae* discloses identifying a plurality of different key frames. The Applicants respectfully submit *Bae* does not disclose identifying a single key frame. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described ...The identical invention must be shown in as complete detail as is contained in the ... claim" MPEP 2131. Further, the Examiner does not outline how a person of ordinary skill in the art would use the plurality of key frames identified by *Bae* and choose 'a single key frame' as required by the claim. "In order to provide a complete application file history and to enhance the clarity of the prosecution history record, an examiner must provide clear explanations of all actions taken by the examiner during prosecution of an application." MPEP 707.07(f). Thus, *Bae* does not disclose utilizing the memory and CPU for determining a key frame in each of the video segments. Accordingly, amended Claim 1 is not anticipated by *Bae.*

Video Segment Less Germ Defines Support

Amended Claim 1 includes the limitation 'utilizing the memory and CPU for defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments'. The Examiner directs

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the Applicants to *Bae*, Fig. 5 and paragraph [0059], <u>Office Action, February 27, 2009, page 4, second last - last line</u>.

(i) <u>Explicit Disclosure</u>

The Examiner states "[t]he synthetic text key frame is generated by summarizing important texts in a video frame in each of the news articles to be inverted into an image; Examiner notes within figure 5, it is noted that the physical text is considered as the germ);" <u>Office Action, February 27, 2009, page 4, last line – page 5 second line</u>. The Examiner does not identify where *Bae* discloses defining a support. Accordingly, the Applicants presume there is no explicit disclosure of a support in *Bae*.

(ii) <u>Implicit Disclosure</u>

The Examiner also directs the Applicants to Figure 5 in *Bae*, <u>Office Action, February 27, 2009, page 4, second last - last line.</u> The only instance in *Bae* which refers to Fig. 5 states "FIG 5 is a view illustrating an example of a synthetic key frame" (see *Bae* paragraph [0035]). In the absence of any other reference in *Bae* upon which to base a discussion of the merits of any implicit disclosure, the Applicants set out a framework upon which the Examiner and Applicants may discuss Figure 5.

Figure 5 contains seven (7) boxes, each with an image. Six (6) of the seven boxes are in a vertical arrangement. Each of the six boxes are of equal dimension and will be referred to hereinafter as Ia, Ib, Ic, Id, Ie and If, labeled from top to bottom. Arrows from Ia extend to Ib and Ic. Further, Ib and Ic depict different portions of Ia. Arrows from each of Ib, Ic, Id, Ie and If extend to the seventh box labeled 'Synthetic Key Frame', positioned to the right of Ia, Ib, Ic, Id,

Ie and If. Within the 'Synthetic Key Frame' box are five (5) boxes Gb, Gc, Gd, Ge and Gf, where Gb, Gc and Gd are at the top left to right, Ge is in the middle and Gf is on the bottom. Each of Gb, Gc, Gd, Ge and Gf depict one or more portions of Ib, Ic, Id, Ie or If, where, Gb depicts a portion of Ib, Gc depicts a portion of Ic, Gd depicts a portion of Id, Ge depicts a portion of Ie and Gf depicts a portion of If.

The Examiner states that "[t]herefore, the corresponding background surrounding the text is considered to be support, since the support is defined as the video segment less the germ" Office Action, February 27, 2009, page 5, lines 15-16. The Applicants respectfully submit that the Examiner's interpretation of *Bae* does not define a support consistent with the limitations of Claim 1. Amended Claim 1 requires 'utilizing the memory and CPU for defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments'. In contrast, the Examiner's interpretation of *Bae* produces two germs from a video segment (Ia produces Ib and Ic, where Ib is used to produce Gb, and Ic is used to produce Gc). If Gb and Gc are germs then Ia defines two germs, not a single germ. As a result, the limitation defining a germ is not met. If in the alternative, the Examiner argues that Gb, Gc, Gd, Ge and Gf are not germs, then *Bae* does not even implicitly disclose 'utilizing the memory and CPU for defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments', since there would be nothing to suggest a germ was separated from a support.

The Applicants' definition of a support does not allow that the support contain a germ. This can easily be understood, since to allow a support to contain another germ could introduce that germ twice into the visual summary, once as a germ and again as a part of a support. This

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could result in a confused image, not a condensed visual summary. Thus, the limitations of claim 1, including 'wherein the video segment less the germ defines a support in each of the video segments' can only be met if there is a one-to-one correspondence between germs and video segments. In *Bae*, if Gb, Gc, Gd, Ge and Gf are germs, then there is not a one-to-one correspondence between germs and video segments (i.e., in *Bae* there is more than one germ taken from the same video segment).

Thus, *Bae* does not implicitly define a support in each of the video segments as per the Applicants' invention. Accordingly, amended Claim 1 is not anticipated by *Bae*.

Filling in the Space

Amended Claim 1 includes the limitation 'utilizing the memory and CPU for filling in the space of the canvas between the germs, wherein filling in the space of the canvas between the germs includes laying out one or more portions of the supports by assigning a pixel value of a point in the space from pixel values of a support of a neighboring germ based on a distance from the point to the neighboring germ'. The Examiner states: "[i]nherently, if the part of the support and the germ are transferred to the synthetic key frame then naturally, at least one pixel value of the support relative to the closes [sic] germ is positioned corresponding to the position of that pixel value relative to the germ" Office Action, February 27, 2009, page 5, lines 20-22.

(i) Explicit Disclosure

Based on the Examiner's statement, the Applicants respectfully submit that *Bae* does not explicitly disclose the 'filling in the space' limitation.

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(ii) Implicit Disclosure

The Examiner claims that filling the space is 'inherent' <u>Office Action, February 27, 2009, page 5, lines 20.</u> The Applicants respectfully disagree. "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic .... Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient .... In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art ..." <u>MPEP 2112.</u>

The Examiner directs the Applicants to Figure 5 in *Bae,* <u>Office Action, February 27, 2009, page 5, line 12.</u> The Examiner also states: "[t]he synthetic text key frame is generated by summarizing important texts in a video frame in each of the news articles to be inverted into an image; Examiner notes that as seen in fig. 5, the germ/region of interest is interpreted to be the text only. Therefore, the corresponding background surrounding the text is considered to be support, since the support is defined as the video segment less the germ. Following this logic, therefore when the summarization of the text occurs, the support along with the germ is separated from the video segments and placed within the synthetic key frame, whereby it fills up the space of the canvas between the germs by having more than one text summarization present in the synthetic key frame. Inherently, if the part of the support and the germ are transferred to the synthetic key frame then naturally, at least one pixel value of the support relative to the closest germ is positioned corresponding to the position of that pixel value relative to the germ" <u>Office Action, February 27, 2009, page 5, lines 12-22.</u>

The Applicants respectfully submit that the Examiner is arguing that germs and supports are filling up the space and therefore supports are filling up the space. In order to support this line of logic, the Examiner is required to argue that Gb, Gc, Gd, Ge and Gf are germs and supports. However, the Examiner has also argued that Gb, Gc, Gd, Ge and Gf are germs "it is noted that the physical text is considered as the germ" Office Action, February 27, 2009, page 5, line 2. If Gb, Gc, Gd, Ge and Gf are germs then the 'filling in the space' limitation cannot be met inherently because in at least the example shown in Figure 5, it does not necessarily flow that a support is positioned in the space. MPEP 2112.

No Enabling Disclosure

The Applicants respectfully submit that this response deals with the implicit disclosure of what is present in Figure 5 because the *Bae* application does not explicitly disclose what is represented in Figure 5. Arguably, *Bae* does not explicitly disclose any of the limitations of Claim 1. Only by carrying out 'thought' experiments can the Examiner implicitly find some but not all of the limitations of the Applicants' invention. Finally, the Applicants respectfully reminds the Examiner that the art cited by the Examiner "must contain an enabling disclosure" MPEP 2131.01. The Applicants note that the *Bae* application (which was abandoned on March 27, 2007) does not enable the Examiner's thought experiments. Specifically, *Bae* does not enable at least the limitation of 'utilizing the memory and CPU for defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments' or the limitation of 'utilizing the memory and CPU for filling in the space of the canvas between the germs, wherein filling in the space of the canvas between the germs includes laying out one or more portions of the supports by

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assigning a pixel value of a point in the space from pixel values of a support of a neighboring germ based on a distance from the point to the neighboring germ'.

Bae does not disclose the limitations: 'dominant group', 'a key frame', 'defining a germ associated with each dominant group in each of the video segments, wherein the video segment less the germ defines a support in each of the video segments' or the 'filling in the space'. "A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described ...The identical invention must be shown in as complete detail as is contained in the ... claim." MPEP 2131. Accordingly, Claim 1 is not anticipated by *Bae*.

Claim 10

Defining a Support

Amended Claim 10 includes the limitation 'utilizing the memory and CPU for determining a germ in each of a plurality of images, the germ containing a region of interest, wherein the video region less the germ defines a support in each of the video regions'. The Examiner directs the Applicants to *Bae*, Fig. 5 and paragraph [0059], Office Action, February 27, 2009, page 4, second last - last line.

(i) Explicit disclosure

The Examiner states "[t]he synthetic text key frame is generated by summarizing important texts in a video frame in each of the news articles to be inverted into an image; Examiner notes within figure 5, it is noted that the physical text is considered as the germ);" Office Action, February 27, 2009, page 6, lines 7 – 9. The Examiner does not identify where

Bae defines a support. Accordingly, the Applicants presumes there is no explicit disclosure of a support in *Bae*.

(ii) Implicit Disclosure

The Examiner also directs the Applicants to Figure 5 in *Bae,* <u>Office Action, February 27, 2009, page 6, lines 6 and 9.</u> The only mention in *Bae* of Figure 5 is "FIG 5 is a view illustrating an example of a synthetic key frame" (see *Bae* paragraph [0035]).

The Applicants respectfully submit that the Examiner's interpretation of *Bae* does not define a support consistent with the limitations of amended Claim 10. Claim 10 requires 'utilizing the memory and CPU for defining a germ in each of the plurality of images, the germ containing a region of interest, wherein the video region less the germ defines a support in each of the video regions'. The Examiner's interpretation of *Bae* produces two germs from a video segment (Ia produces Ib and Ic, where Ib is used to produce Gb, and Ic is used to produce Gc). If Gb and Gc are germs then Ia defines two germs, not a single germ. As a result, the limitation defining a support is not met. If in the alternative, the Examiner argues that Gb, Gc, Gd, Ge and Gf are not germs then *Bae* does not even implicitly disclose 'defining a germ in each of the plurality of images, the germ containing a region of interest, wherein the video region less the germ defines a support in each of the video regions' as per Claim 10, since there would be nothing to suggest let alone disclose that the video region less the germ defines a support.

Thus, *Bae* does not implicitly define a support in each of the video segments as per the Applicants' invention. Accordingly, Claim 10 is not anticipated by *Bae*.

Separating the Germ

Amended Claim 10 includes the limitation 'utilizing the memory and CPU for separating the germ from the video segments'. The Examiner directs the Applicants to *Bae*, Fig. 5 and paragraph [0059], Office Action, February 27, 2009, page 6, line 10.

(i) Explicit disclosure

The Examiner states "[t]he synthetic text key frame is generated by summarizing important texts in a video frame in each of the news articles to be inverted into an image);" Office Action, February 27, 2009, page 6, lines 10 – 12. The Examiner does not identify where *Bae* defines separating the germ from the video segments. Accordingly, the Applicants presumes there is no explicit disclosure of 'separating the germ' in *Bae*.

(ii) Implicit Disclosure

The Examiner also directs the Applicants to Figure 5 in *Bae,* Office Action, February 27, 2009, page 6, line 10. The only mention in *Bae* of Figure 5 is "FIG 5 is a view illustrating an example of a synthetic key frame" (see *Bae* paragraph [0035]).

The Applicants respectfully submits that the Examiner's interpretation of what *Bae* implicitly discloses, does not include 'utilizing the memory and CPU for separating the germ from the video segments'.

Thus, *Bae* does not implicitly disclose utilizing the memory and CPU for separating the germ from the video segments as per the Applicants' invention. Accordingly, amended Claim 10 is not anticipated by *Bae*.

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<u>Filling in the Space</u>

Amended Claim 10 also includes the limitation "utilizing the memory and CPU for filling in the space of the canvas between the irregular two dimensional shape germs by laying out one or more parts of the support by assigning a pixel value of a point in the space from pixel values of a support of a neighboring germ based on a distance from the point to the neighboring germ". The Examiner directs the Applicants to *Bae*, Fig. 5 and paragraph [0059], <u>Office Action, February 27, 2009, page 6, line 17</u>.

The Examiner states "[t]he synthetic text key frame is generated by summarizing important texts in a video frame in each of the news articles to be inverted into an image; Examiner notes that as seen in fig. 5, the germ/region of interest is interpreted to be the text only. Therefore, the corresponding background surrounding the text is considered to be support, since the support is defined as the video segment less the germ. Following this logic, therefore when the summarization of the text occurs, the support along with the germ is separated from the video segments and placed within the synthetic key frame, whereby it fills up the space of the canvas between the germs by having more than one text summarization present in the synthetic key frame. Inherently, if part of the support surrounding the germ are transferred to the synthetic key frame then naturally, at least one pixel value of the support relative to the closest to the germ is positioned corresponding to the position of that pixel value relative to the germ)" <u>Office Action, February 27, 2009, page 6, line 17 – page 7, line 5</u>.

(i) <u>Explicit Disclosure</u>

Based on the Examiner's statement, the Applicants respectfully submit that *Bae* does not explicitly disclose the 'filling in the space' limitation.

(ii) <u>Implicit Disclosure</u>

The Examiner claims that filling the space is 'inherent' <u>Office Action, February 27, 2009, page 7, line 3.</u> The Applicants respectfully disagrees. "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic .... Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient .... In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art ..." <u>MPEP 2112.</u>

The Examiner directs the Applicants to Figure 5 in *Bae,* <u>Office Action, February 27, 2009, page 6, line 17.</u>

The Applicants respectfully submits that the Examiner is arguing that germs and supports are filling up the space and therefore supports are filling up the space. In order to support this line of logic, the Examiner is required to argue that Gb, Gc, Gd, Ge and Gf are germs with supports. However, earlier the Examiner argued that Gb, Gc, Gd, Ge and Gf were germs without supports "it is noted that the physical text is considered as the germ" <u>Office Action, February 27, 2009, page 5, line 2.</u> If Gb, Gc, Gd, Ge and Gf are germs without supports then the 'filling up the space' limitation cannot be met inherently because in at least the example shown in Figure 5, it does not necessarily flow that a support is positioned in the space. <u>MPEP 2112.</u>

Because *Bae* does not disclose the 'defining a support', 'separating the germ' or 'filling in the space' limitations, it does not disclose the identical invention, in as complete detail. Accordingly, amended Claim 10 is not anticipated by *Bae*.

Claim 12

Claim 12 directly depends from independent Claim 10, and is therefore believed patentable for at least the same reasons as independent Claim 10 and because of the additional limitations of this claim.

Claim 22

Defining a Support

Amended Claim 22 includes the limitation 'utilizing the memory and CPU for defining a support in each of the video segments, wherein the support is the video segment less the germ'. The Examiner directs the Applicants to *Bae*, Fig. 5 and paragraph [0059], Office Action, February 27, 2009, page 7, line 17.

(i) Explicit disclosure

The Examiner states "… summarizing important texts in a video frame in each of the news articles. Examiner notes that the germ is considered to be the text and the support is the background surrounding the text)" Office Action, February 27, 2009, page 7, lines 17 – 19. The Examiner does not identify where *Bae* defines a support. Accordingly, the Applicants presume there is no explicit disclosure of a support in *Bae*.

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(ii) Implicit Disclosure

The Examiner also directs the Applicants to Figure 5 in *Bae*, Office Action, February 27, 2009, page 6, lines 6 and 9. The only mention in *Bae* of Figure 5 is "FIG 5 is a view illustrating an example of a synthetic key frame" (see *Bae* paragraph [0035]).

The Applicants respectfully submit that the Examiner's interpretation of *Bae* does not define a support consistent with the limitations of Claim 22. There are two possibilities. Either Gb, Gc, Gd, Ge and G are germs with supports or Gb, Gc, Gd, Ge and G are germs without supports. If Gb, Gc, Gd, Ge and Gf are germs with supports then *Bae* does not disclose limitation (A) 'utilizing the memory and CPU for determining a germ in each of a plurality of images, the germ containing a region of interest' and limitation (C) utilizing the memory and CPU for separating the germ from the video segments' required by Claim 22. Alternatively, if *Bae* does disclose limitations (A) and (C), then Gb, Gc, Gd, Ge and Gf are germs without supports. However, if Gb, Gc, Gd, Ge and Gf are germs without supports, then *Bae* cannot even implicitly disclose 'defining a support in each of the video segments, wherein the support is the video segment less the germ'.

Thus, *Bae* does not implicitly define a support in each of the video segments as per the Applicants' invention. Accordingly, Claim 22 is not anticipated by *Bae*.

Separating the Germ

Amended Claim 22 includes the limitations 'utilizing the memory and CPU for separating the germ from the video segments'. The Examiner directs the Applicants to *Bae*, Fig. 5 and paragraph [0059], Office Action, February 27, 2009, page 7, line 20.

(i) Explicit disclosure

The Examiner states "[t]he synthetic text key frame is generated by summarizing important texts in a video frame in each of the news articles to be inverted into an image …" Office Action, February 27, 2009, page 7, lines 10 – 12. The Examiner does not identify where *Bae* discloses separating the germ from the video segments. Accordingly, the Applicants presume there is no explicit disclosure of separating the germ from the video segments in *Bae*.

(ii) Implicit Disclosure

The Examiner also directs the Applicants to Figure 5 in *Bae,* Office Action, February 27, 2009, page 7, line 20. The only mention in *Bae* of Figure 5 is "FIG 5 is a view illustrating an example of a synthetic key frame" (see *Bae* paragraph [0035]).

The Applicants respectfully submit that the Examiner's interpretation of *Bae* does not disclose separating the germ from the video segments consistent with the limitation of Claim 22. Amended Claim 22 also requires (A) 'utilizing the memory and CPU for determining a germ in each of a plurality of images, the germ containing a region of interest' and (B) 'utilizing the memory and CPU for defining a support in each of the video segments, wherein the support is the video segment less the germ'. The Examiner states that the "… physical text is considered as the germ …" and the "… support is the background surrounding the text …". Office Action, February 27, 2009, page 7, lines 15 and 18-19.

There are two possibilities. Either Gb, Gc, Gd, Ge and G are germs without supports or Gb, Gc, Gd, Ge and G are germs with supports. If Gb, Gc, Gd, Ge and Gf are germs without supports then *Bae* does not disclose limitation (B) 'defining a support in each of the video segments, wherein the support is the video segment less the germ' required by Claim 22.

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Alternatively, if *Bae* does disclose limitations (B), then Gb, Gc, Gd, Ge and Gf are germs with supports. However, if Gb, Gc, Gd, Ge and Gf are germs with supports, then *Bae* cannot even implicitly disclose 'separating the germ from the video segments'. Thus, *Bae* does not implicitly define separating the germ from the video segments as per the Applicants' invention.

Bae does not disclose the 'defining a support', 'separating the germ' or the 'filling in the space' limitations. As such, it does not disclose the identical invention, in as complete detail. Accordingly, Claim 22 is not anticipated by *Bae*.

Claim 23

Defining a Support

Amended Claim 23 includes the limitation 'utilizing the memory and CPU for defining a support in each of the video segments, wherein the support is the video segment less the germ'. The Examiner directs the Applicants to *Bae*, Fig. 5 and paragraph [0059], Office Action, February 27, 2009, page 9, line 2.

(i) Explicit disclosure

The Examiner states "… summarizing important texts in a video frame in each of the news articles. Examiner notes that the germ is considered to be the text and the support is the background surrounding the text …" Office Action, February 27, 2009, page 9, lines 2 – 4. The Examiner does not identify where *Bae* defines a support. Accordingly, the Applicants presume there is no explicit disclosure of a support in *Bae*.

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(ii) Implicit Disclosure

The Examiner also directs the Applicants to Figure 5 in *Bae*, Office Action, February 27, 2009, page 9, line 2. The only mention in *Bae* of Figure 5 is "FIG 5 is a view illustrating an example of a synthetic key frame" (see *Bae* paragraph [0035]).

The Applicants respectfully submit that the Examiner's interpretation of *Bae* does not define a support consistent with the limitations of Claim 23. There are two possibilities. Either Gb, Gc, Gd, Ge and G are germs with supports or Gb, Gc, Gd, Ge and G are germs without supports. If Gb, Gc, Gd, Ge and Gf are germs with supports then *Bae* does not disclose limitation (A) 'utilizing the memory and CPU for determining a germ in each of a plurality of images, the germ containing a region of interest' and limitation (C) utilizing the memory and CPU for separating the germ from the video segments' required by Claim 23. Alternatively, if *Bae* does disclose limitations (A) and (C), then Gb, Gc, Gd, Ge and Gf are germs without supports. However, if Gb, Gc, Gd, Ge and Gf are germs without supports, then *Bae* cannot even implicitly disclose 'defining a support in each of the video segments, wherein the support is the video segment less the germ'.

Thus, *Bae* does not implicitly define a support in each of the video segments as per the Applicants' invention. Accordingly, amended Claim 23 is not anticipated by *Bae*.

Separating the Germ

Amended Claim 23 includes the limitations 'utilizing the memory and CPU for separating the germ from the video segments'. The Examiner directs the Applicants to *Bae*, Fig. 5 and paragraph [0059], Office Action, February 27, 2009, page 9, line 5.

(i) Explicit disclosure

The Examiner states "[t]he synthetic text key frame is generated by summarizing important texts in a video frame in each of the news articles to be inverted into an image …" Office Action, February 27, 2009, page 9, lines 5 – 7. The Examiner does not identify where *Bae* discloses separating the germ from the video segments. Accordingly, the Applicants presume there is no explicit disclosure of separating the germ from the video segments in *Bae*.

(ii) Implicit Disclosure

The Examiner also directs the Applicants to Figure 5 in *Bae,* Office Action, February 27, 2009, page 9, line 5. The only mention in *Bae* of Figure 5 is "FIG 5 is a view illustrating an example of a synthetic key frame" (see *Bae* paragraph [0035]).

The Applicants respectfully submits that the Examiner's interpretation of *Bae* does not disclose separating the germ from the video segments consistent with the limitations of Claim 23. Claim 23 also requires (A) 'utilizing the memory and CPU for determining a germ in each of a plurality of images, the germ containing a region of interest' and (B) 'utilizing the memory and CPU for defining a support in each of the video segments, wherein the support is the video segment less the germ'. The Examiner states that the "… physical text is considered as the germ …" and the "… support is the background surrounding the text …". Office Action, February 27, 2009, page 8, last line and page 9, lines 3-4.

There are two possibilities. Either Gb, Gc, Gd, Ge and G are germs without supports or Gb, Gc, Gd, Ge and G are germs with supports. If Gb, Gc, Gd, Ge and Gf are germs without supports then *Bae* does not disclose limitation (B) 'defining a support in each of the video segments, wherein the support is the video segment less the germ' required by Claim 23.

Alternatively, if *Bae* does disclose limitations (B), then Gb, Gc, Gd, Ge and Gf are germs with supports. However, if Gb, Gc, Gd, Ge and Gf are germs with supports, then *Bae* cannot even implicitly disclose 'separating the germ from the video segments'.

Thus, *Bae* either does not meet limitations for defining a support or *Bae* does not implicitly define separating the germ from the video segments as per the Applicants' invention.

Filling in the Space

Amended Claim 23 also includes the limitation 'utilizing the memory and CPU for filling in the space of the canvas between the germs, wherein filling in the space of the canvas between the germs includes laying out one or more portions of the supports, to generate a highly condensed visual summary of the plurality of video segments'. The Examiner directs the Applicants to *Bae*, Fig. 5 and paragraph [0059], Office Action, February 27, 2009, page 9, line 15-16.

The Examiner states "[t]he synthetic text key frame is generated by summarizing important texts in a video frame in each of the news articles to be inverted into an image; Examiner notes that as seen in fig. 5, the germ/region of interest is interpreted to be the text only. Therefore, the corresponding background surrounding the text is considered to be support, since the support is defined as the video segment less the germ. Following this logic, therefore when the summarization of the text occurs, the support along with the germ is separated from the video segments and placed within the synthetic key frame, whereby it fills up the space of the canvas between the germs by having more than one text summarization present in the synthetic key frame. Inherently, if part of the support surrounding the germ are transferred to the synthetic key frame then naturally, at least one pixel value of the support relative to the closest to the germ is

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positioned corresponding to the position of that pixel value relative to the germ) …" <u>Office</u> <u>Action, February 27, 2009, page 9, line 16 – page 10, line 5</u>.

(i) <u>Explicit Disclosure</u>

Based on the Examiner's statement, the Applicants respectfully submit that *Bae* does not explicitly disclose the 'filling in the space' limitation.

(ii) <u>Implicit Disclosure</u>

The Examiner claims that filling the space is 'inherent' <u>Office Action, February 27, 2009,</u> <u>page 7, line 3.</u> The Applicants respectfully disagree. "The fact that a certain result or characteristic may occur or be present in the prior art is not sufficient to establish the inherency of that result or characteristic …. Inherency ... may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient …. In relying upon the theory of inherency, the examiner must provide a basis in fact and/or technical reasoning to reasonably support the determination that the allegedly inherent characteristic necessarily flows from the teachings of the applied prior art …" <u>MPEP</u> <u>2112.</u>

The Examiner directs the Applicants to Figure 5 in *Bae,* <u>Office Action, February 27,</u> <u>2009, page 9, line 16.</u>

The Applicants respectfully submit that the Examiner is arguing that germs and supports are filling up the space and therefore supports are filling up the space. In order to support this line of logic, the Examiner is required to argue that Gb, Gc, Gd, Ge and Gf are germs with supports. However, earlier the Examiner argued that Gb, Gc, Gd, Ge and Gf were germs without

supports "it is noted that the physical text is considered as the germ" <u>Office Action, February 27, 2009, page 5, line 2</u>. If Gb, Gc, Gd, Ge and Gf are germs without supports then the 'filling up the space' limitation cannot be met inherently because in at least the example shown in Figure 5, it does not necessarily flow that a support is positioned in the space. <u>MPEP 2112.</u>

Because *Bae* does not disclose the 'defining a support', 'separating the germ' or 'filling in the space' limitations, it does not disclose the identical invention, in as complete detail. Accordingly, Claim 23 is not anticipated by *Bae*.

Claim 24

Amended Claim 24 includes the limitations 'utilizing the memory and CPU for determining a dominant group in each of a plurality of video segments, wherein the dominant group includes a face' and 'utilizing the memory and CPU for defining a germ associated with each dominant group in each of the video segments, wherein the germ is the x-y projection of the dominant group including the face onto the keyframe'. Since *Bae* does not disclose both these limitations, it does not anticipate amended Claim 24.

Further, because *Bae* does not disclose the 'separating the germ' or the 'filling in the space' limitations, it does not disclose the identical invention, in as complete detail. Accordingly, Claim 24 is not anticipated by *Bae*

In view of the above, Applicants respectfully request that the Examiner reconsider and withdraw the 102(b) rejections.

6.   Claims 2-6, 13-15 and 20 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Bae*, in view of Uchihashi et al., ACM Multimedia: "Video Manga: Generating Semantically Meaningful Video Summaries" (hereinafter *Uchihashi*).

Claim 2

Claim 2 includes the limitation "determining a group within each of the plurality of video segments having the largest 3-D volume". The Examiner states that *"Uchihashi teaches determining a group within each of the plurality of video segments having the largest 3D-volume (Uchihashi: section 4.2, length of the segment is scored)"*. Office Action, February 27, 2009, page 12, lines 7 - 8.

Further, the Examiner states that "[i]t would have been obvious at the time the invention was made to one of ordinary skill in the art to modify the Bae reference to determine a group having the largest volume as taught by Uchihashi, in order to 'calculate an importance score for each segment based on its rarity and duration ..." Office Action, February 27, 2009, page 12, lines 9-12. The Applicants respectfully disagree. The question is not whether it would have been obvious to modify *Bae* to determine an importance score based on rarity or duration but rather whether it would have been obvious to modify *Bae* to determine a dominant group has the largest 3-D volume. That is that the dominant group occupies the largest three dimensional volume in x-y-t space as per the Applicants' definition of 3-D volume in the specification (see paragraph [0032] in the specification as filed). The Examiner is assuming that the Applicants' limitation results in selection of rare groups or groups with long duration. However, the Examiner does not state any basis for this assumption. The word 'duration' or the prefix 'rar' do not appear in the

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Applicants' specification. "In order to provide a complete application file history and to enhance the clarity of the prosecution history record, an examiner must provide clear explanations of all actions taken by the examiner during prosecution of an application." MPEP 707.07(f).

Further, Claim 2 is directed to a volume, not a time duration. The Applicants respectfully submit that based on the Examiner's limitation, a face that appears throughout a video would be selected as it was of long duration. However, the Applicants' invention would look to the size of the face relative to other groups as well as how long the face was observed relative to other groups to determine whether it was the largest 3-D volume. Since neither *Bae* nor *Uchihashi* teach or suggest a '3-D volume', as defined by Applicants, they do not teach or suggest all limitations of Claim 2.

Claims 3-6, 13-15 and 20 all directly or indirectly depend from independent Claims 1 and 10, and are therefore believed patentable for at least the same reasons as independent Claims 1 and 10 and because of the additional limitations of these claims.

7.   Claims 7, 9, 16 and 18 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Bae*, in view of Hirata, U.S. Patent No. 6,922,485 (hereinafter *Hirata*).

Claims 7 and 9

Claim 7 includes the limitation "assigning a pixel value of each point in the canvas to the same pixel value in the support associated with the germ closest to each point". Claim 9 includes the limitation "wherein the point is assigned a background value if no support includes the

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point". The Examiner states that these limitations are taught by *Hirata* at column 8, lines 62-67 – column 9, lines 1-14. Office Action, February 27, 2009, page 15, last paragraph.

"Referring to FIG. 8, the invention merges the color regions based on hierarchical cluster analysis. The threshold value to determine whether color regions are merged is calculated based on the distribution of the distance between the color regions. The invention uses the nearest neighbor method at first and then subsequently applies the furthest neighbor method. "Nearest neighbor" and "furthest neighbor" are known methods for categorizing data. To execute the methods, the system calculate the distance of all the pair of regions, and merge the regions from the closest pair until the number of the category or until all the distance between the regions are less than the threshold values. The difference is how to define the new distance among the new created region and other regions. In this method, separated regions can be merges as one region. The system calculates the distance of all possible pairs of the regions and executes the region merge. A new segmentation matrix Z.sub.3 is produced from the old segmentation matrix Z.sub.2. Some of the color regions in the new segmentation matrix Z.sub.3 could have more than two segmented areas." *Hirata* column 8, lines 62 – column 9, lines 14.

The Examiner explains "… wherein the point is assigned a background value if no support includes the point (see col. 8, lines 62-67; col. 9, lines 1-14)." Office Action, February 27, 2009, page 15, last paragraph. A word search of *Hirata* finds no occurrences of the words 'point' or 'support' or the words 'background value' in the section identified by the Examiner, or anywhere in *Hirata*. Further, although *Hirata* constructs a segmentation matrix, the segmentation matrix does not allow the point to be assigned to a single "background value" if no support includes the point. "In order to provide a complete application file history and to enhance the clarity of the prosecution history record, an examiner must provide clear

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explanations of all actions taken by the examiner during prosecution of an application." MPEP 707.07(f).

Since neither *Bae* nor *Hirata* teach or suggest "assigning a pixel value of each point in the canvas to the same pixel value in the support associated with the germ closest to each point" or "assigning the pixel to a background value", they do not teach or suggest all limitations of Claims 7 and 9. As such, Claims 7 and 9 were not obvious at the time the invention was made.

Claims 16 and 18

Claim 16 is cancelled. Claim 18 includes the limitation "wherein if the germ closest to the point does not have a support that includes the point, the point is assigned the pixel value of the closest germ with a support that includes the point". The Examiner states that this limitation is taught by *Hirata* at column 8, lines 62-67 – column 9, lines 1-14. Office Action, February 27, 2009, page 16, lines 12-13.

The Examiner explains "... wherein the point is assigned a background value if no support includes the point (see col. 8, lines 62-67; col. 9, lines 1-14)." Office Action, February 27, 2009, page 15, lines 13-14. A word search of *Hirata* finds no occurrences of the words 'point' or 'support' or the words 'background value' in the section identified by the Examiner, or anywhere in *Hirata*. Further, although *Hirata* constructs a segmentation matrix, the segmentation matrix does not allow the point to be assigned to a single "background value" if no support includes the point. Nor does the text cited by the Examiner (or segmentation matrix) contain a hierarchical rule such as disclosed in Claim 18 to determine the pixel value to assign points when the closest support does not cover the point. "In order to provide a complete application file history and to enhance the clarity of the prosecution history record, an examiner

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must provide clear explanations of all actions taken by the examiner during prosecution of an application." MPEP 707.07(f).

Since neither *Bae* nor *Hirata* teach or suggest "assigning a pixel value of each point in the canvas to the same pixel value in the support associated with the germ closest to each point" or "wherein if the germ closest to the point does not have a support that includes the point, the point is assigned the pixel value of the closest germ with a support that includes the point", they do not teach or suggest all limitations of Claims 16 and 18. As such, Claims 16 and 18 were not obvious at the time the invention was made.

8.   Claims 11 and 19 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Bae*, in view of Li et al., U.S. Patent No. 7,035,435 (hereinafter *Li*).

Claims 11 and 19 directly depend from independent Claims 10 and 1 respectively, and are therefore believed patentable for at least the same reasons as independent Claims 1 and 10 and because of the additional limitations of these claims.

9.   Claims 21 and 25 are rejected under 35 U.S.C. §103(a) as allegedly being unpatentable over *Bae*, in view of Leow et al, U.S. Patent No. 7,091,969 (hereinafter *Leow*).

Claim 21

Claim 21 includes the limitation "using a Voronoi algorithm to determine the shape of the support to be placed on the canvas". The Examiner argues that *Leow* teaches this limitation. Applicants respectfully disagree. *Leow* is concerned with three space objects (see, Column 1,

lines 5-8) such as three dimensional (3-D) polygonized objects (see, Column 1, lines 24-25). *Leow* teaches using 'Voronoi diagrams' and Delaunay triangulation, to construct triangulation mesh. Column 2, lines 20-21. In contrast, the Applicants' Voronoi algorithm computes the boundary curves between the germs for a two dimensional object.

The Applicants note that the *Leow* application is directed to meshes made up of discrete points and edges, which are isolated objects. In contrast, the Applicants' invention is directed to image patches made up of regions, which are contiguous objects. Further, *Leow* teaches how a 2-D picture can be mapped to 3-D coordinates. Column 4, lines 49-51. Based on this teaching, it is apparent that *Leow* considered that it would not be obvious to one of ordinary skill in the art how to adapt the teaching of 3-D coordinates to two dimensional pictures. The Examiner does not explain how a person of ordinary skill in the art would adapt the teaching of *Leow* for use by *Bae*. That is, how would a person of ordinary skill in the art modify the *Bae* reference to generate multiple 2-D pictures to generate the 3-D coordinates and then how would this 3-D data be used to generate the key frames, groups, germs and supports of the current invention? Alternatively, how would a person of ordinary skill in the art modify the *Leow* reference to operate on 2-D objects? In addition, it is not clear what the correspondence is between the meshes of *Leow* and the image patches of the Applicants. Since neither *Bae* nor *Leow* teach or suggest "using a Voronoi algorithm to determine the shape of the support to be placed on the canvas", they do not teach or suggest all limitations of Claim 21. As such, Claim 21 was not obvious at the time the invention was made.

Claim 25

Amended Claim 25 includes the limitation "utilizing the memory and CPU for computing boundary curves between the germs using a Voronoi algorithm". The Examiner argues that *Leow* teaches this limitation. Applicants respectfully disagree. *Leow* is concerned with three space objects (see, <u>Column 1, lines 5-8</u>) such as three dimensional (3-D) polygonized objects (see, <u>Column 1, lines 24-25</u>). *Leow* teaches using 'Voronoi diagrams' and Delaunay triangulation, to construct triangulation mesh. <u>Column 2, lines 20-21</u>. In contrast, the Applicants' Voronoi algorithm computes the boundary curves between the germs for a two dimensional object.

The Applicants note that the *Leow* application is directed to meshes made up of discrete points and edges, which are isolated objects. In contrast, the Applicants' invention is directed to image patches made up of regions, which are contiguous objects. Further, *Leow* teaches how a 2-D picture can be mapped to 3-D coordinates. <u>Column 4, lines 49-51</u>. Based on this teaching, it is apparent that *Leow* considered that it would not be obvious to one of ordinary skill in the art how to adapt the teaching of 3-D coordinates to two dimensional pictures. The Examiner does not explain how a person of ordinary skill in the art would adapt the teaching of *Leow* for use by *Bae*. That is, how would a person of ordinary skill in the art modify the *Bae* reference to generate multiple 2-D pictures to generate the 3-D coordinates and then how would this 3-D data be used to generate the key frames, groups, germs and supports of the current invention? Alternatively, how would a person of ordinary skill in the art modify the *Leow* reference to operate on 2-D objects? In addition, it is not clear what the correspondence is between the meshes of *Leow* and the image patches of the Applicants. Since neither *Bae* nor *Leow* teach or

suggest "computing boundary curves between the germs using a Voronoi algorithm", they do not teach or suggest all limitations of Claim 25.

Further, because *Bae* and *Leow* do not disclose the 'defining a support', 'separating the germ' or the 'filling in the space' limitations, they do not disclose the identical invention, in as complete detail. Accordingly, Claim 25 was not obvious at the time the invention was made.

In view of the above, Applicants respectfully request that the Examiner reconsider and withdraw the 103(a) rejections.

CONCLUSION

In light of the above, it is respectfully requested that all outstanding rejections be reconsidered and withdrawn. The Examiner is respectfully requested to telephone the undersigned if he can assist in any way in expediting issuance of a patent.

The Commissioner is authorized to charge the required fees and any underpayment of fees or credit any overpayment to Deposit Account No. 06-1325 for any matter in connection with this reply, including any fee for extension of time, which may be required.

Respectfully submitted,

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